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STATE INTELLECTUAL PROPERTY OFFICE OF THE P.R.C.

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Abstract

A process for the preparation of separating out a polyoxyalkylene-alpha, omega-dicarboxylic acid by reacting the corresponding polyoxyalkylene glycol with a stable free radical nitroxide in the presence of a NOx-generating compound and optionally, an oxidant and/or a solvent, at a temperature in the range of from 0 DEG C to 100 DEG C.

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Claim

1, the method of preparation following formula polyoxyalkylene - α , ω - dicarboxylic acid

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Wherein R / be hydrogen or methyl or their mix (in different molecules), n is the integer by 0-5000, this method includes that corresponding polyoxyalkylene glycol and the stable nitroxide free radical that has a following posture in the presence of the compound and oxidant that produce NO_x, react in 0-100 DEG C temperature range, isolate polyoxyalkylene - α , ω - dicarboxylic acid thereafter,

Wherein (1) (a) R₁, R₂, R₃ With R₄ Each be the alkyl that alkyl, aryl or heteroatom substituted contain a 1-15 carbon atom, (b) R₅ With R₆ (i) each is alkyl (if the R who contains a 1-15 carbon atom, R₆ Be not the alkyl entirely), or be a 1-15 carbon atom

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Description

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Claim

Replace the alkyl, wherein the substituting group is hydrogen, cyanic acid, CONH_2 , OCOCH , $\text{O-COC}_2\text{H}_5$, carbonyl, alkenyl, wherein the double key not with nitroxide part conjugation, or - COOR , wherein R be alkyl or aryl or (ii) common constitute contain two at least carbon atoms partly until two heteroatom O or N's ring, or (2)

The part with

The part can be the aryl respectively.

2, the method of claim 1, wherein stable nitroxide free radical is like the following formula

Claim

Wherein R_7 , R_8 , R_9 With R_{10} In each is the alkyl that alkyl, aryl or heteroatom substituted contain a 1-15 carbon atom, R_{11} With R_{12} In each is alkyl, hydrogen, aryl or substituted heteroatom.

3, the method of claim 2, wherein stable nitroxide free radical be selected from 2,2,6,6- tetramethyl - piperidine - 1- oxygen base, 4- pivaloyl amido - 2,2,6,6- tetramethyl piperidine - 1- oxygen base, 4- alkoxy - 2,2,6,6- tetramethyl - piperidine - 1- oxygen base and their mixture.

4, any one method among the claim 1-3, wherein said production NOx's compound is a nitric acid.

5, any one method among the claim 1-4, 5mol% to 1000mol% is counted with the mole number of polyoxyalkylene glycol to the compound quantity scope that wherein produces NOx.

Claim

6, any one method among the claim 1-5, wherein said polyoxyalkylene glycol contacts with said stable nitroxide free radical, then adds said production NOx's compound and said oxidant.

7, any one method among the claim 1-6, 1mol% to 500mol% is counted with the mole number of polyoxyalkylene glycol to wherein stable nitroxide free radical quantity.

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Description

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